

# SEQUENCE LISTING

<110> Zahner, Joseph E.

<120> Inhibitor of cell proliferation and methods of use thereof.

<130> ME 04-001

<140>

<141> 2004-01-04

<150> 10/083,889

<151> 2002-02-27

<160> 25

<170> Microsoft Word 97

<210> 1

<211> 1530

<212> DNA

<213> Homo sapiens

<300>

<301> Liu, J.H.

Wei, S.

Burnette, P.K.

Gamero, A.M.

Hutton, M

Djeu, J.Y.

<302> Functional association of TGF-beta receptor II with cyclin B

<303> Oncogene

<304> 18

<305> 1

<306> 269-275

<307> 1999-01-07

<308> Genbank Accession No. NM\_004701

<309> 2000-11-01

<400> 1

aatcctggaa caaggctaca gcgtcgaaga tccccagcgc tgcgggctcg gagagcagtc 60

ctaacggcgc ctcgtagct agtgctctcc cttttcagtc cgcgtccctc cctgggccgg 120

gctggcactc ttgccttccc cgccctcat ggcgctgctc cgacgcccga cgggtgccag 180

tgatttggag aatattgaca caggagttaa ttctaaagtt aagagtcagtg tgactattag 240

gcgaactgtt ttagaagaaa ttggaaatag agttacaacc agagcagcac aagtagctaa 300

gaaagctcag aacaccaaag ttccagttca acccaccaaa acaacaaatg tcaacaaaca 360

actgaaacct actgcttctg tcaaaccagt acagatggaa aagttggctc caaagggctc 420

ttctcccaca cctgaggatg tctccatgaa ggaagagaat ctctgccaag ctttttctga 480

tgccttgctc tgcaaaatcg aggacattga taacgaagat tgggagaacc ctcagctctg	540
cagtgactac gttaaggata tctatcagta tctcaggcag ctggagggtt tgcagtccat	600
aaaccacat ttcttagatg gaagagatat aaatggacgc atgcgtgcc a tcctagtga	660
ttggctggta caagtccact ccaagtttag gcttctgcag gagactctgt acatgtgcgt	720
tggcattatg gatcgatttt tacaggttca gccagtttcc cggaagaagc ttcaattagt	780
tgggattact gctctgctct tggcttccaa gtatgaggag atgttttctc caaatattga	840
agactttgtt tacatcacag acaatgctta taccagttcc caaatccgag aaatggaaac	900
tctaattttg aaagaattga aatttgagtt gggtcgaccc ttgccactac acttcttaag	960
gcgagcatca aaagccgggg aggttgatgt tgaacagcac actttagcca agtatttgat	1020
ggagctgact ctcatcgact atgatatggt gcattatcat ccttctaagg tagcagcagc	1080
tgcttcctgc ttgtctcaga aggttctagg acaaggaaaa tggaacttaa agcagcagta	1140
ttacacagga tacacagaga atgaagtatt ggaagtcatg cagcacatgg ccaagaatgt	1200
ggtgaaagta aatgaaaact taactaaatt catcgccatc aagaataagt atgcaagcag	1260
caaaactcctg aagatcagca tgatccctca gctgaactca aaagccgtca aagaccttgc	1320
ctccccactg ataggaaggt cctaggctgc cgtgggccct ggggatgtgt gcttcattgt	1380
gccctttttc ttattgggtt agaactcttg attttgtaca tagtcctctg gtctatctca	1440
tgaaacctct tctcagacca gttttctaaa catatattga ggaaaaataa agcgattggt	1500
ttttcttaag gtataaaaaa aaaaaaaaaa	1530

<210> 2

<211> 398

<212> PRT

<213> Homo sapiens

<300>

<301> Liu, J.H.

Wei, S.

Burnette, P.K.

Gamero, A.M.

Hutton, M

Djeu, J.Y.

<302> Functional association of TGF-beta receptor II with cyclin B

<303> Oncogene

<304> 18

<305> 1

<306> 269-275

<307> 1999-01-07

<308> Genbank Accession No. NM\_004701

<309> 2000-11-01

<400> 2

Met Ala Leu Leu Arg Arg Pro Thr Val Ser Ser Asp Leu Glu Asn Ile  
5 10 15

Asp Thr Gly Val Asn Ser Lys Val Lys Ser His Val Thr Ile Arg Arg  
20 25 30

Thr Val Leu Glu Glu Ile Gly Asn Arg Val Thr Thr Arg Ala Ala Gln  
35 40 45

Val Ala Lys Lys Ala Gln Asn Thr Lys Val Pro Val Gln Pro Thr Lys  
50 55 60

Thr Thr Asn Val Asn Lys Gln Leu Lys Pro Thr Ala Ser Val Lys Pro  
65 70 75 80

Val Gln Met Glu Lys Leu Ala Pro Lys Gly Pro Ser Pro Thr Pro Glu  
85 90 95

Asp Val Ser Met Lys Glu Glu Asn Leu Cys Gln Ala Phe Ser Asp Ala  
100 105 110

Leu Leu Cys Lys Ile Glu Asp Ile Asp Asn Glu Asp Trp Glu Asn Pro  
115 120 125

Gln Leu Cys Ser Asp Tyr Val Lys Asp Ile Tyr Gln Tyr Leu Arg Gln  
130 135 140

Leu Glu Val Leu Gln Ser Ile Asn Pro His Phe Leu Asp Gly Arg Asp  
145 150 155 160

Ile Asn Gly Arg Met Arg Ala Ile Leu Val Asp Trp Leu Val Gln Val  
165 170 175

His Ser Lys Phe Arg Leu Leu Gln Glu Thr Leu Tyr Met Cys Val Gly  
180 185 190

Ile Met Asp Arg Phe Leu Gln Val Gln Pro Val Ser Arg Lys Lys Leu  
195 200 205

Gln Leu Val Gly Ile Thr Ala Leu Leu Leu Ala Ser Lys Tyr Glu Glu  
210 215 220

Met Phe Ser Pro Asn Ile Glu Asp Phe Val Tyr Ile Thr Asp Asn Ala  
225 230 235 240

Tyr Thr Ser Ser Gln Ile Arg Glu Met Glu Thr Leu Ile Leu Lys Glu  
245 250 255

Leu Lys Phe Glu Leu Gly Arg Pro Leu Pro Leu His Phe Leu Arg Arg  
260 265 270

Ala Ser Lys Ala Gly Glu Val Asp Val Glu Gln His Thr Leu Ala Lys  
275 280 285

Tyr Leu Met Glu Leu Thr Leu Ile Asp Tyr Asp Met Val His Tyr His

290	295	300
Pro Ser Lys Val Ala Ala Ala Ser Cys Leu Ser Gln Lys Val Leu 305 310 315 320		
Gly Gln Gly Lys Trp Asn Leu Lys Gln Gln Tyr Tyr Thr Gly Tyr Thr 325 330 335		
Glu Asn Glu Val Leu Glu Val Met Gln His Met Ala Lys Asn Val Val 340 345 350		
Lys Val Asn Glu Asn Leu Thr Lys Phe Ile Ala Ile Lys Asn Lys Tyr 355 360 365		
Ala Ser Ser Lys Leu Leu Lys Ile Ser Met Ile Pro Gln Leu Asn Ser 370 375 380		
Lys Ala Val Lys Asp Leu Ala Ser Pro Leu Ile Gly Arg Ser 385 390 395		

<210> 3  
 <211> 70  
 <212> PRT  
 <213> Homo sapiens

Met Ala Leu Leu Arg Arg Pro Thr Val Ser Ser Asp Leu Glu Asn Ile 5 10 15
Asp Thr Gly Val Asn Ser Lys Val Lys Ser His Val Thr Ile Arg Arg 20 25 30
Thr Val Leu Glu Glu Ile Gly Asn Arg Val Thr Thr Arg Ala Ala Gln 35 40 45
Val Ala Lys Lys Ala Gln Asn Thr Lys Val Pro Val Gln Pro Thr Lys 50 55 60
Thr Thr Asn Val Asn Lys 65 70

<210> 4  
 <211> 398  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> Site  
 <222> (32)  
 <223> arginine or alanine

<220>  
 <221> Site  
 <222> (35)  
 <223> leucine or alanine





tgcttgctgc agaggctggg agctggaggg tttggctcgg tgtacaaggc gacttaccgc	240
ggtgttcctg tggccataaa gcaagtgaac aagtgcacca agaaccgact agcatctcgg	300
cggagtttct gggctgagct caacgtagca aggctgcgcc acgataacat cgtgcgcgtg	360
gtggctgcc a gcacgcgcac gcccgcaggg tccaatagcc tagggacat catcatggag	420
ttcgggtggca acgtcacttt acaccaagtc atctatggcg ccgccggcca ccctgagggg	480
gacgcagggg agcctcactg ccgcactgga ggacagttaa gtttgggaaa gtgtctcaag	540
tactcactag atgttgtgaa cggcctgctc ttccctccact cgcaaagcat tgtgcacttg	600
gacctgaagc ccgcgaacat cttgatcagt gagcaggatg tctgtaaaat tagtgacttc	660
ggttgctctg agaagttgga agatctgctg tgcttccaga caccctctta ccctctagga	720
ggcacatata ccacccgcgc cccggagctc ctgaaaggag agggcgtgac gcctaaagcc	780
gacatttatt cctttgccat cactctctgg caaatgacta ccaagcaggc gccgtattcg	840
ggggagcggc agcacatact gtacgcggtg gtggcctacg acctgcgccc gtccctctcc	900
gctgccgtct tcgaggactc gctccccggg cagcgccttg gggacgtcat ccagcgtgc	960
tggagaccca gcgcggcgca gaggccgagc gcgcggctgc ttttgggtgga tctcacctct	1020
ttgaaagctg aactcggctg a	1041

<210> 6  
 <211> 346  
 <212> PRT  
 <213> Homo sapiens

<300>  
 <301> Watson, R.  
       Oskaesson, M.  
       Vande Woude, G.F.  
 <302> Human DNA sequence homologous to the transforming gene (mos) of  
       Moloney murine sarcoma virus.  
 <303> EMBO J.  
 <304> 4  
 <305> 9  
 <306> 2245-2248  
 <307> 1982-01-07  
 <308> Genbank Accession No. NM\_004701  
 <309> 2000-11-01

<400> 6  
 Met Pro Ser Pro Leu Ala Leu Arg Pro Tyr Leu Arg Ser Glu Phe Ser  
                   5                                  10                                  15  
 Pro Ser Val Asp Ala Arg Pro Cys Ser Ser Pro Ser Glu Leu Pro Ala  
                   20                                  25                                  30

Lys Leu Leu Leu Gly Ala Thr Leu Pro Arg Ala Pro Arg Leu Pro Arg  
 35 40 45  
 Arg Leu Ala Trp Cys Ser Ile Asp Trp Glu Gln Val Cys leu Leu Gln  
 50 55 60  
 Arg Leu Gly Ala Gly Gly Phe Gly Ser Val Tyr Lys Ala Thr Tyr Arg  
 65 70 75 80  
 Gly Val Pro Val Ala Ile Lys Gln Val Asn Lys Cys Thr Lys Asn Arg  
 85 90 95  
 Leu Ala Ser Arg Arg Ser Phe Trp Ala Glu Leu Asn Val Ala Arg Leu  
 100 105 110  
 Arg His Asp Asn Ile Val Arg Val Val Ala Ala Ser Thr Arg Thr Pro  
 115 120 125  
 Ala Gly Ser Asn Ser Leu Gly Thr Ile Ile Met Glu Phe Gly Gly Asn  
 130 135 140  
 Val Thr Leu His Gln Val Ile Tyr Gly Ala Ala Gly His Pro Glu Gly  
 145 150 155 160  
 Asp Ala Gly Glu Pro His Cys Arg Thr Gly Gly Gln Leu Ser Leu Gly  
 165 170 175  
 Lys Cys Leu Lys Tyr Ser Leu Asp Val Val Asn Gly Leu Leu Phe Leu  
 180 185 190  
 His Ser Gln Ser Ile Val His Leu Asp Leu Lys Pro Ala Asn Ile Leu  
 195 200 205  
 Ile Ser Glu Gln Asp Val Cys Lys Ile Ser Asp Phe Gly Cys Ser Glu  
 210 215 220  
 Lys Leu Glu Asp Leu Leu Cys Phe Gln Thr Pro Ser Tyr Pro Leu Gly  
 225 230 235 240  
 Gly Thr Tyr Thr His Arg Ala Pro Glu Leu Leu Lys Gly Glu Gly Val  
 245 250 255  
 Thr Pro Lys Ala Asp Ile Tyr Ser Phe Ala Ile Thr Leu Trp Gln Met  
 260 265 270  
 Thr Thr Lys Gln Ala Pro Tyr Ser Gly Glu Arg Gln His Ile Leu Tyr  
 275 280 285  
 Ala Val Val Ala Tyr Asp Leu Arg Pro Ser Leu Ser Ala Ala Val Phe  
 290 295 300  
 Glu Asp Ser Leu Pro Gly Gln Arg Leu Gly Asp Val Ile Gln Arg Cys  
 305 310 315 320  
 Trp Arg Pro Ser Ala Ala Gln Arg Pro Ser Ala Arg Leu Leu Leu Val  
 325 330 335



Asp Leu Thr Ser Leu Lys Ala Glu Leu Gly  
340 345

<210> 7  
<211> 16  
<212> PRT  
<213> Kaposi virus

<400> 7  
Ala Ala Val Ala Leu Leu Pro Ala Val Leu Leu Ala Leu Leu Ala Pro  
5 10 15

<210> 8  
<211> 12  
<212> PRT  
<213> Mammalian

<400> 8  
Ala Ala Val Leu Leu Pro Val Leu Leu Ala Ala Pro  
5 10

<210> 9  
<211> 15  
<212> PRT  
<213> Mammalian

<400> 9  
Val Thr Val Leu Ala Leu Gly Ala Leu Ala Gly Val Gly Val Gly  
5 10 15

<210> 10  
<211> 17  
<212> PRT  
<213> HIV-1

<400> 10  
Gly Ala Leu Phe Leu Gly Phe Leu Gly Ala Ala Gly Ser Thr Met Gly  
5 10 15

Ala  
17

<210> 11  
<211> 33  
<212> PRT  
<213> Caiman sp.

<400> 11  
Met Gly Leu Gly Leu His Leu Leu Val Leu Ala Ala Ala Leu Gln Gly  
5 10 15

Ala Met Gly Leu Gly Leu His Leu Leu Leu Ala Ala Ala Leu Gln Gly  
20 25 30

Ala  
33

<210> 12  
<211> 30  
<212> PRT  
<213> Influenza

<400> 12  
Trp Glu Ala Lys Leu Ala Lys Ala Leu Ala Lys Ala Leu Ala Lys His  
                  5                  10                  15  
  
Leu Ala Lys Ala Leu Ala Lys Ala Leu Lys Ala Cys Glu Ala  
          20                  25                  30

<210> 13  
<211> 30  
<212> PRT  
<213> Influenza

<400> 13  
Trp Glu Ala Ala Leu Ala Glu Ala Leu Ala Glu Ala Leu Ala Glu His  
                  5                  10                  15  
  
Leu Ala Glu Ala Leu Ala Glu Ala Leu Glu Ala Leu Glu Ala  
          20                  25                  30

<210> 14  
<211> 24  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Synthetic amino acid polymer

<400> 14  
Leu Ala Arg Leu Leu Ala Arg Leu Leu Ala Arg Leu Leu Ala Arg Leu  
                  5                  10                  15  
  
Leu Ala Arg Leu Leu Ala Arg Leu  
          20

<210> 15  
<211> 18  
<212> PRT  
<213> Unknown

<220>  
<223> amphipathic cationic amino acid polymer

<400> 15  
Lys Leu Leu Lys Leu Leu Leu Lys Leu Trp Lys Leu Leu Leu Lys Leu

	5	10	15
--	---	----	----

Leu Lys  
18

<210> 16  
<211> 15  
<212> PRT  
<213> *Drosophila melanogaster*

<400> 16  
Arg Gln Ile Lys Ile Trp Phe Gln Arg Arg Met Lys Lys Trp Lys  
5 10 15

<210> 17  
<211> 11  
<212> PRT  
<213> HIV-1

<400> 17  
Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg  
5 10

<210> 18  
<211> 8  
<212> PRT  
<213> HIV-1

<400> 18  
Gly Arg Lys Lys Arg Arg Gln Arg  
5

<210> 19  
<211> 34  
<212> PRT  
<213> Mammal

<400> 19  
Asp Ala Ala Thr Ala Thr Arg Gly Arg Ser Ala Ala Ser Arg Pro Thr  
5 10 15

Glu Arg Pro Arg Ala Pro Ala Arg Ser Ala Ser Arg Pro Arg Arg Pro  
20 25 30

Val Glu  
34

<210> 20  
<211> 27  
<212> PRT  
<213> Artificial sequence

<220>

<223> Composite peptide containing elements of galanin and mastoparan

<400> 20

Gly Trp Thr Leu Asn Ser Ala Gly Tyr Leu Leu Gly Lys Ile Asn Leu  
5 10 15

Lys Ala Leu Ala Ala Leu Ala Lys Lys Ile Leu  
20 25

<210> 21

<211> 1375

<212> DNA

<213> Homo sapiens

<400> 21

gaattcgcca ggaagaagcg gaggcaacga aatcctggaa caaggctaca gcgtcgaaga	60
tccccagcgc tgcgggctcg gagagcagtc ctaacggcgc ctcgtagcgt agtgtcctcc	120
cttttcagtc cgcgtccctc cctgggcccgg gctggcactc ttgccttccc cgtccctcat	180
ggcgtgctc cgacgcccga cgggtgtccag tgatttgag aatattgaca caggagttaa	240
ttctaaagtt aagagtcattg tgactattag gcgaactggt ttagaagaaa ttggaaatag	300
agttacaacc agagcagcac aagtagctaa gaaagctcag aacaccaaag ttccagttca	360
accacacaaa acaacaaatg tcaacaaaca actgaaacct actgcttctg tcaaaccagt	420
acagatggaa aagttggctc caaaggggtcc ttctcccaca cctgaggatg tctccatgaa	480
ggaagagaat ctctgccaaag ctttttctga tgccttgctc tgcaaaatcg aggacattga	540
taacgaagat tgggagaacc ctcagctctg cagtgcactac gttaaggata tctatcagta	600
tctcaggcag ctggagggttt tgcagtccat aaaccacat ttcttagatg gaagagatat	660
aatggacgc atgcgtgcc aacctagtga ttggctggta caagtccact ccaagtttag	720
gcttctgcag gagactctgt acatgtgcgt tggcattatg gatcgatttt tacaggttca	780
gccagtttcc cggaagaagc ttcaattagt tgggattact gctctgctct tggcttccaa	840
gtatgaggag atgttttctc caaatattga agactttggt tacatcacag acaatgctta	900
taccagttcc caaatccgag aatggaaac tctaattttg aaagaattga aatttgagtt	960
gggtcgaccc ttgccactac acttcttaag gcgagcatca aaagccgggg aggttgatgt	1020
tgaacagcac actttagcca agtatttgat ggagctgact ctcatcgact atgatatggt	1080
gcattatcat ccttctaagg tagcagcagc tgcttcctgc ttgtctcaga aggttctag	1140
acaaggaaaa tggaacttaa agcagcagta ttacacagga tacacagaga atgaagtatt	1200

ggaagtcattg cagcacatgg ccaagaatgt ggtgaaagta aatgaaaact taactaaatt 1260  
catcgccatc aagaataagt atgcaagcag caaactcctg aagatcagca tgatccctca 1320  
gctgaactca aaagccgtca aagaccttgc ctccccactg ataggaaggt cctag 1375

<210> 22  
<211> 408  
<212> PRT  
<213> Homo sapiens

<400> 22  
glu phe gly arg lys lys arg arg gln arg Met Ala Leu Leu Arg Arg  
5 10 15  
Pro Thr Val Ser Ser Asp Leu Glu Asn Ile Asp Thr Gly Val Asn Ser  
20 25 30  
Lys Val Lys Ser His Val Thr Ile Arg Arg Thr Val Leu Glu Glu Ile  
35 40 45  
Gly Asn Arg Val Thr Thr Arg Ala Ala Gln Val Ala Lys Lys Ala Gln  
50 55 60  
Asn Thr Lys Val Pro Val Gln Pro Thr Lys Thr Thr Asn Val Asn Lys  
65 70 75 80  
Gln Leu Lys Pro Thr Ala Ser Val Lys Pro Val Gln Met Glu Lys Leu  
85 90 95  
Ala Pro Lys Gly Pro Ser Pro Thr Pro Glu Asp Val Ser Met Lys Glu  
100 105 110  
Glu Asn Leu Cys Gln Ala Phe Ser Asp Ala Leu Leu Cys Lys Ile Glu  
115 120 125  
Asp Ile Asp Asn Glu Asp Trp Glu Asn Pro Gln Leu Cys Ser Asp Tyr  
130 135 140  
Val Lys Asp Ile Tyr Gln Tyr Leu Arg Gln Leu Glu Val Leu Gln Ser  
145 150 155 160  
Ile Asn Pro His Phe Leu Asp Gly Arg Asp Ile Asn Gly Arg Met Arg  
165 170 175  
Ala Ile Leu Val Asp Trp Leu Val Gln Val His Ser Lys Phe Arg Leu  
180 185 190  
Leu Gln Glu Thr Leu Tyr Met Cys Val Gly Ile Met Asp Arg Phe Leu  
195 200 205  
Gln Val Gln Pro Val Ser Arg Lys Lys Leu Gln Leu Val Gly Ile Thr  
210 215 220  
Ala Leu Leu Leu Ala Ser Lys Tyr Glu Glu Met Phe Ser Pro Asn Ile  
225 230 235 240

Glu Asp Phe Val Tyr Ile Thr Asp Asn Ala Tyr Thr Ser Ser Gln Ile  
                   245                                  250                                  255  
 Arg Glu Met Glu Thr Leu Ile Leu Lys Glu Leu Lys Phe Glu Leu Gly  
                   260                                  265                                  270  
 Arg Pro Leu Pro Leu His Phe Leu Arg Arg Ala Ser Lys Ala Gly Glu  
                   275                                  280                                  285  
 Val Asp Val Glu Gln His Thr Leu Ala lys Tyr Leu Met Glu Leu thr  
                   290                                  295                                  300  
 Leu Ile Asp Tyr Asp Met Val His Tyr His Pro Ser Lys Val Ala Ala  
 305                                  310                                  315                                  320  
 Ala Ala Ser Cys Leu Ser Gln Lys Val Leu Gly Gln Gly Lys Trp Asn  
                   325                                  330                                  335  
 Leu Lys Gln Gln Tyr Tyr Thr Gly Tyr Thr Glu Asn Glu val Leu Glu  
                   340                                  345                                  350  
 Val Met Gln His Met Ala Lys Asn Val Val Lys Val Asn Glu Asn Leu  
                   355                                  360                                  365  
 Thr Lys Phe Ile Ala Ile Lys Asn Lys Tyr Ala Ser Ser Lys Leu Leu  
                   370                                  375                                  380  
 Lys Ile Ser Met Ile Pro Gln Leu Asn Ser Lys Ala Val Lys Asp Leu  
 385                                  390                                  395                                  400  
 Ala Ser Pro Leu Ile Gly Arg Ser  
                   405

<210> 23  
 <211> 55  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic single-stranded oligonucleotide primer

<400> 23  
 aaaagaattc ggcaggaaga agcggaggca acgaatggcg ctcagggtca ctagg 55

<210> 24  
 <211> 34  
 <212> DNA  
 <213> Artificial sequence

<220>  
 <223> Synthetic single-stranded oligonucleotide primer

<400> 24  
 ttttgcggcc gctgcctttg tcacggcctt agac 34

<210> 25  
 <211> 1336  
 <212> DNA  
 <213> Mus musculus

<400> 25  
 aaaagaattc ggcaggaaga agcggaggca acgaatggcg ctcaggggtca ctaggaacac 60  
 gaaaattaac gcagaaaata aggccaaggt cagtatggca ggcgccaagc gtgtgcctgt 120  
 gacagttact gctgcttcca agcccgggct gagaccgaga actgctcttg gagacattgg 180  
 taataaagtc agcgaagagc tacaggcaac agtgcctctg aaaagggag caaaaacgct 240  
 aggtactgga aaaggtactg ttaaagccct accaaaaacct gtagagaagg tgcctgtgtg 300  
 tgaaccagag gtggaacttg ctgaacctga gcctgaacct gaacttgaac atgttagaga 360  
 agagaagctt tctcctgaac ctatttttgt tgataatccc tctccaagcc cgatggaaac 420  
 atgtggatgt gcgcctgcag aagagtatcc gtgtcaggct ttctctgatg taatccttgc 480  
 agtgagtgc gtagacgcag atagtggggc tgacccaaac ctctgtagtg aatatgtgaa 540  
 agatatctat gcttatctcc gacaactgga ggaagagcag tcagttagac caaaatacct 600  
 acagggtcgt gaagtgcactg gaaacatgag agctatcctc attgactggc taatacaggt 660  
 tcagatgaaa tttaggctgc ttcaggagac catgtacatg actgtgtcca ttattgatcg 720  
 gttcatgcag aacagttgtg tgccaagaa gatgatacag ctggtcggtg taacggccat 780  
 gtttattgca agcaaataatg aagacatgta cccaccagaa ataggtgact tcgcctttgt 840  
 gactaacaac acgtacacta agcaccagat cagacagatg gagatgaaga ttctcagagt 900  
 tctgaacttc agcctgggtc gccctctgcc tctgcacttc ctccgtagag catctaaagt 960  
 cggagagggt gacgtcaggc agcacactct ggccaaatac ctcatggagc tctccatgct 1020  
 ggactacgac atgggtgcatt ttgctccttc cagggcattt tctggggctt tctgcttagc 1080  
 gctggaaatt cttgacaacg gtgaatggac accaactctg cagcactacc tatcctacag 1140  
 tgaagactcc ctgcttcctg ttatgcagca cctggctaag aatgtagtca tgggtgaactg 1200  
 tggcctcaca aagcacatga ctgtcaagaa caagtatgca gcatctaagc atgctaagat 1260  
 cagcacgctg gcacagctga actgtacaca tgttcagaat ttgtctaagg ccgtgacaaa 1320  
 ggcagcggcc gcaaaa 1336